FACTORS AFFECTING PURCHASE INTENTION TOWARD SOLAR SYSTEM IN LEBANON

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ABSTRACT

Solar system technology plays a critical role in the creation of income-generating activities, better health care, and access to a contemporary and powerful light source that may allow workers and people to work and study longer hours. Lebanon attempts to expand its countrywide electrical networks have been hindered by the absence of pricing and institutional changes in the power industry, despite national initiatives backed by donors.

This research aimed to investigate the impact of the five following factors environmental concern, environmental awareness, government initiative, technology anxiety and cost concern on the purchase intention of solar system. A quantitative approach was used, and data was gathered online using Google Forms. Survey questionnaire were distributed to Lebanese citizens from a variety of backgrounds. Only 300 of the 350 respondents were collected. The data has been analyzed by using statistical software SPSS, including reliability and validity assessments of the measurements and hypothesis testing results. The results showed that all hypotheses are positively related expect the relationship between technology anxiety and purchase intention of solar system. However, the study also revealed several limitations and identified potential directions for future research.

Keywords: Environmental Concern, Environmental Awareness, Government Initiative, Technology Anxiety, Cost Concerns, and Purchasing Intention.

1.Introduction:

The provision of electricity is crucial for development and is a key pillar of the United Nations' Sustainable Energy for All (SE4ALL) Initiative. However, around 1.2 billion people worldwide lack access to electricity, which limits their opportunities for improving their welfare. Access to electricity is important for socio-economic development, including enhanced income, productivity, and employment. Poor households in most countries face challenges in accessing quality energy services and have limited ability to pay for them. National efforts with donor support to expand the national electricity grids in poor countries are slow due to limited electric

generation and supply, resulting from the lack of price and institutional reforms in the power sector. Despite these challenges, alternative sources of electricity generation such as solar power provide a viable alternative to conventional approaches to electrification (Shoeibi et al., 2022).

The lack of electricity is regarded a serious obstacle to growth and especially in Lebanon. In order to give contemporary energy like electricity to light up a room or prepare a meal or do other manufacturing tasks would be very difficult. In Lebanon, poor families have limited access to and financial capacity to pay for adequate energy services. This implies that Lebanese people can afford and utilize the power that is now available. Lebanon attempts to expand its countrywide electrical networks have been hindered by the absence of pricing and institutional changes in the power industry, despite national initiatives backed by donors (Alstone, 2015).

Solar energy has emerged as a viable option to the more traditional methods of electrification due to the rapid advancement of technology in this area. As a means of reaching universal electrification in underdeveloped countries, a decentralized solar system-based energy generating mechanism has gained popularity in recent years (Samad et al., 2013). Even though solar home system has been acknowledged for decades, little study has been done on how and when to promote them in a specific solar system. In the literature, there are a few studies examining the factors that lead to the early adoption of solar system technology (Lay, Ondraczek & Stoever, 2012). Household income and other factors like price and technology have a significant role. Any price assistance for decreasing the cost of solar system acquisition and maintenance looks to be a possibility for speeding solar system adoption in impoverished nations.

There are significant obstacles to overcome the electricity in developing nations. A lack of funds, a lack of political will, and conflicting national agendas make it difficult to take proactive steps to resolve electricity problems. When compared to other renewable energy sources like solar thermal, geothermal, wind, and biomass, solar offers the highest potential for producing low-cost electrical electricity. In order to achieve a sustainable future, solar energy has the greatest capacity. When gas and oil prices varied between $7.5 million BTU and $55 to 110 million BTU during the past several years, coal-fired power production has switched dramatically toward coal (Daniela-Abigail et al., 2022).

Consumers are not aware of the importance of participating in green energy programs and are not motivated to do so even if they get financial compensation for doing so (Kim & Choi, 2005). In Lebanon customers' understanding of the long-term effects of buying ecologically friendly items is still lacking (Gurau & Ranchhod, 2005). In addition, the government's plan is not encouraging the adoption of solar system and this will not make buyers understand the value of green goods (Schelly et al., 2012). Customers are not persuaded to adopt green goods, which reduces environmental degradation, as part of the company's responsibilities (Matti & Nebiker, 2014).

Despite some recent improvements, Lebanon's renewable energy commitment and supporting legislation remain inadequate. There is a noticeable lack of political will among decision-makers in government and municipalities when it comes to addressing environmental or sustainable development challenges. This is a significant hindrance to the growth of the solar energy market, which depends on public support. The adoption of renewable energy is not a top priority for the government due to the country's political instability and security concerns (Thornton, 2016). Moreover, the lack of technology use and awareness in Lebanon is causing technology anxiety, which is hindering the adoption of solar systems. The government's failure to conduct awareness campaigns on solar technology has resulted in the absence of knowledge among the Lebanese people. This lack of information, coupled with the country's economic crisis, has caused people to view the solar system as a risky investment (Sugita et al., 2019).

According to the above, this study will examine the factors affecting the adoption of solar system in Lebanese context. Therefore, this study will focus on five essential parts. First part represents the theoretical background which includes the theories related to purchase intention in order to better understand the consumer behaviour toward purchase intention. These theories are Theory of Planned Behavior (TPB) and Diffusion of Innovation Theory (DIT). Subsequently, the second part discusses the variables conceptualization which constitutes the diverse definitions and the variables used in this study. the third part represents the literature review and hypothesis development. Followed by the data analysis, discussions and the final part represents the conclusions, limitations and future research.

2. Theoretical Background

In this research, the researcher will discuss the two following theories, theory of planned behaviour (TPB) and diffusion of innovation theory (DIT).

2.1 The Theory of Planned Behaviour

Theory of Planned Behavior (TPB), which is an extension of TRA advanced by Ajzen in 1991; also claims that behavioral intention is the highest influential predictor of behavior. Ajzen (1991) argued that intentions to perform behaviors of diverse types can be expected with great precision from attitudes toward the behavior, subjective norms and perceived behavioral control PBC (which is the new added predictor affected by beliefs about resources and obstacles that interfere performing a behavior); and these intentions with perceptions of behavioral control, will together explain a considerable variance in real behavior. In addition, there are fundamental determinants which can be categorized to: behavioral beliefs impacting attitudes toward the behavior, normative beliefs which constitute the original causes of subjective norms and control beliefs which establish the roots for perceptions of behavioral control.

2.2. Diffusion of Innovation Theory (DIT)

Introducing new ideas, goods, or technology to people of one's own culture is referred to as "diffusion of innovations" (DIT) (Rogers, 2010). Early adopters (13.5 percent), early majority (34 percent), late majority (34 percent), and laggards (16 percent) are the four groups of individuals who are most likely to embrace new products and ideas when they are initially offered (Rogers, 2010). DIT is highly reliant on innovation, communication routes, the social system, and temporal considerations to guarantee diffusion is accomplished. DIT dissemination depends on these variables. A new concept or invention may only spread to a critical mass if it is effectively communicated (Rogers, 2010). An innovative idea can only be adopted by the general public with the help of the social structure.

As a result, Rogers (2010) outlined the five steps of the innovation process as: knowledge, persuasion, choice, execution, and confirmation. People's adoption of innovation may be influenced by both good and negative characteristics of the product. Individuals may adopt or acquire solar panels because of the perceived product advantage and aesthetics (positive assessments), or they may be motivated by the cost and upkeep involved (negative evaluations). DIT theories are widely accepted for forecasting customers' deliberate behaviour toward new items, including those using green energy. The researcher proposed that the variables from DIT will help to investigate how people perceive government policy and the costs associated with it. Both factors and theories would lead to a greater understanding behind the concept of purchasing the solar system.

2.3. Variables' Conceptualization

This section will define each of the dependent and independent variables.

2.3.1 Environmental Concern

Takala (1991) have defined environmental concern as an appraisal of, or an attitude toward facts or one's own or another's behaviour that has ramifications for the environment. Environmental concern might thus relate to a specific attitude that directly influences intentions, or it could refer to a more general attitude or value orientation (Stern, 1992).

Environmental concern is defined as every individual who is concerned about environmental quality because they are concerned about the health of others. Moreover, Stern (1992) identified a theory which thinks that environmental concern is a result of some deeper source, such as underlying religious views or post-materialistic worth.

Customers' growing reliance on green energy goods is being attributed in part to environmental concerns, which are seen as a primary motivator for them to make such investments. Consumers' attitudes, beliefs, economic considerations, and social impact are all considered to anticipate a

broad range of consumer behaviour when it comes to adopting home solar systems (Chen, 2013). The definition of environmental concern is to educate consumers about the importance of participating in green energy programs and to motivate them even if they get no financial compensation for doing do (Schelly et al., 2012). Environmental concern is defined as a precursor to a variety of highly specific constructs, including environmental knowledge, beliefs, and willingness to pay (WTP), in the majority of relevant literature (Delistavrou & Tilikidou, 2022).

2.3.2 Environmental Awareness

Environmental awareness has gained in popularity in recent years. Environmental awareness involves being cognizant of the potential hazards to the natural environment and identifying actions that can contribute to or prevent these hazards. It is essential to understand the meaning and significance of environmental awareness by exploring its definition and background. Going green can manifest in various forms, but it centers around prioritizing the natural environment and making eco-friendly business decisions. Examples include choosing a glass or ceramic water bottle instead of a plastic one, or using all-natural hair care products instead of hazardous aerosol sprays (Gadenne et al., 2009).

In addition, environmental awareness is defined as customers go through a sequence of steps in information, conviction, choice and confirmation before they are ready to embrace a new product or service. The acceptance or rejection of an invention occurs when the customer becomes aware of the innovation (Schoch et al., 2009). Environmental awareness is also defined as being aware of the natural environment and making decisions that are healthy for the world is precisely what the phrase indicates (Kim et al., 2020).

2.3.3 Government Initiative

The government has to properly organize solar system to coincide with the incentives of businesses, financial institutions, and consumers in order to successfully install solar system, provide enough funding, and guide independent research in the right path. Customers inexperienced with solar energy system may have been the initial target of the incentives (Kim et al., 2020)

The term government initiative refers to the potential to own a manufacturing plant in the bioenergy sector where inside a provincial or state-owned energy firm is another (Ushakov et al., 2019). In the event of market failure or where such intervention will promote social welfare, government action is warranted. Therefore, a government should only include bioenergy into the manufacturing process if doing so improves the general public's well-being (Daniela-Abigail et al., 2022).

Government initiative is defined as both the government revenues (i.e. taxes) needed to run the facility and the existing earnings should take a back seat. In the bioenergy economy, governments

often have a role in shaping policies that influence the actions of individuals and businesses. When it comes to their own finances, families prioritize utility, which might include financial prosperity, whereas businesses are primarily motivated by cost and profit considerations. The government's ability to influence these elements via taxation, subsidies, and regulation is undeniable. Common methods of assisting new businesses in their early stages entail adjusting either the pricing or the volume of resources invested (Maseh & Katuu, 2017).

2.3.4 Technology Anxiety

Technology anxiety refers to a wide range of unease and trepidation about using and mastering new technologies. For example, loosing vital data or making errors when utilizing technology, this may be concerned about the negative implications (Compeau & Higgins, 1995). The term technology anxiety has been used to describe the temporary state that results from environmental stressors, while general technology anxiety has been used to describe the general fear that people have when using technology. However, this new term allows researchers to examine the individual psychological reactions to technology rather than focusing on more general behavioural aspects. Thus, the notion is a more generalizable one that may be used outside of the corporate world. Even more importantly, the concept of technology anxiety enables us to examine the development of negative emotions and dread as a result from the introduction of a certain technology, rather than the acceptance and usage of the technology itself such as the technology acceptance model (Meuter et al., 2003).

Furthermore, anxiety over technology has been identified as a factor in people's reluctance to adopt new technologies and as a roadblock to their adoption. In addition, TISA (Technology Induced State Anxiety) is a term used to describe a negative attitude toward technology that has an impact on the way people interact with it (Mokyr et al., 2015).

Technophobia and technostress are defined as a long-lasting unpleasant emotional response to technology, may also be produced by anxiety which is a general distressful condition brought about by technology (Nimrod, 2020).

2.3.5 Cost Concerns

Cost concern is defined as the cost for the solar energy which consists of an initial investment to set up the machines as well as their periodic maintenance costs (Rogers, 2010). Higher the benefit-cost ratio, the positive the intention to switch to renewable energy. This scenario is common for solar energy as well. The minimum investment required to install renewable energy can be higher (Rogers, 2010).

The cost of solar system refers to the incorporation of both a holistic outlook on the initial requirement to set up the machines as well as their periodic costs. Higher the cost of the technology, the lower its value to users, and lower its rate of usage. Price/costs is one of the single

most important factors that influences consumer adoption of innovation. If consumers are to use new technologies, the technologies must be reasonably priced relative to alternatives. Otherwise, the acceptance of the new technology may not be viable from the standpoint of the consumer (Bandara & Amarasena, 2020).

Customers have expressed worries regarding upfront investment, maintenance, and extra service charges in solar system literature. Installation, repair, and maintenance expenses, as well as the growing cost of power, worry some prospective customers (Ushakov et al., 2019). To address these issues, this research focuses on the financial implications of using and maintaining solar system services.

2.3.6 Intention to Purchase Solar System

Purchase intention is the willingness of a client to acquire a given product or a certain service (Rizwan, 2014). Purchase intentions are a measure of the respondent's attitude towards purchasing a product or availing a service (Aliyev, 2021). Moreover, purchase intentions are a highly essential measure in marketing and consider as beneficial in developing marketing actions or promotions. In truth, marketing based on intentions or intent marketing is about marketing products & things based on the intentions of the customers or the consumer's intent to accept, acquire or use a certain product or service which may or may not have been explicitly specified by the firm or brand (Goutam, 2022).

3. Literature Review and Hypothesis Development

Literature review shows the previous studies related to the intention to purchase solar system in order to develop hypothesis to test the influence of different constructs.

3.1. The Relationship between Environmental Concern and Intention to Purchase Solar System

Solar adoption behaviour is influenced by environmental concerns, which are well-known (Kollmuss & Agyeman 2002). However, environmental concern has an indirect influence on behaviour because of its impact on individual values, which in turn affects the individual's motivation to engage in the behaviour (Maartensson & Loi, 2022; Klöckner & Matthies 2004).

There is a positive relationship between environmental concern and solar system (Shah & Bhatt, 2022; Saraireh, 2023; Klabi & Binzafrah, 2022; Zameer & Yasmeen, 2022; Harun et al., 2022). Consumers who are concerned about the environment are more likely to buy renewable energy (Ho & Huynh, 2022). Environmentalists and individuals who believe they have a duty to safeguard the environment are more likely to support the usage of renewable energy (Daniela-Abigail, 2020). According to Tan et al., 2022), if a person cares about the environment, they will be more likely to choose green goods. In addition, consumer understanding of renewable energy is positively influenced by environmental concern (Li et al., 2022). Moreover, environmentally concerned

customers are highly engaged in green purchasing behaviour (Lee, 2022). Environment concern among customers are on the rise, as people shift their purchasing habits to include more environmentally friendly products and services (Patwary, 2023). However, there is a negative relationship between environmental concern and purchase intention toward solar system (Asif, 2022). Thus, the hypothesis will be formulated as follows:

H1: A positive significant relationship between environmental concern and purchase intention toward solar system.

2.4.2 The Relationship Between Environmental Awareness and Intention to Purchase Solar System

Pothitou et al., (2016) conducted a household survey evaluating the influence of ENK and knowledge on energy issues on potential pro-environmental behavior. A study confirms that people with more awareness about the environment are more likely to buy renewable energy (Zografakis et al., 2010; Asif, 2022).

As consumers become more aware of the environmental impact of items, they begin to influence their purchasing decisions (Laroche et al., 2001). According to Zameer and Yasmeen, (2022), customers who have a high degree of environmental awareness and care are more likely to buy environmentally friendly products. In addition, there is a positive relationship between the environmental awareness and intention to purchase solar system (Wang et al., 2022; Abeysekera, et al., 2022; Su et al., 2022; Krisdayanti & Widodo, 2022; Le et al., 2022; Eberle et al., 2022). Thus, the hypothesis will be formulated as follows:

H2: A positive significant relationship between environmental awareness and purchase intention toward solar system.

2.4.3 The Relationship Between Government Initiative and Intention to Purchase Solar System

The strong government commitment to greener products makes the consumer more eager to adopt a solar lighting system by considered the government as a trustworthy part (Ushakov et al., 2019). Government assistance for monitoring policies, financing, subsidies and other promotional efforts is critical in promoting the use of solar system (Pathak & Sharma, 2022; Atulkar, 2022). The solar system adoption is on the rise; when the government's initiative provides financial incentives and education on the benefits of solar system usage. Thus, the role of government leads for the usage of solar system (Khan & Nazir, 2022; Hyysalo et al., 2022). A positive relationship between government initiative and purchase intention toward solar system (Qader et al., 2023). Thus, the hypothesis will be formulated as follows:

H3: A positive significant relationship between government initiative and purchase intention toward solar system.

2.4.4 The Relationship Between Technology Anxiety and Intention yo Purchase Solar System

Daniela-Abigail et al., (2022) showed that individuals who feel uncomfortable with new technologies has a bad effect to adopt these technologies.

It has been suggested by (Schettino et al., 2022; Daramola, 2022; Rosen et al., 2022) that there is a negative correlation between technological apprehension and consumer willingness to make a purchase, which might limit the benefits of growing computerization of society. While this study focused on anxiety specifically, the lessons learnt are readily transferable to other forms of fear associated with the use of technology. Ushakov et al., (2019) found a negative correlation between technological dread and the desire to buy, claiming that many people avoid investing in solar power because of concerns about their comfort with technology. Thus, the hypothesis will be formulated as follows:

H4: A negative significant relationship between technology anxiety and purchase intention toward solar system.

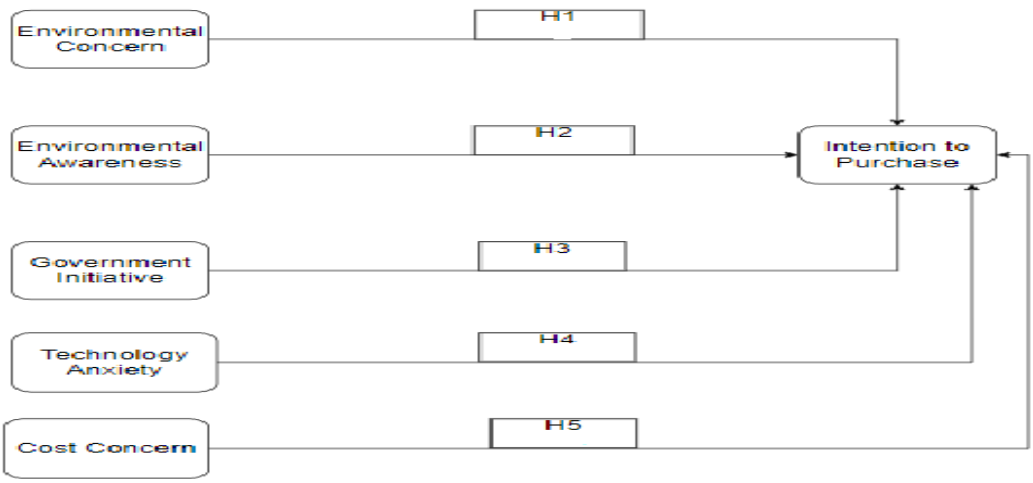
2.4.5 The Relationship Between Cost Concern and Intention to Purchase Solar System

According to many researches it is found there is a direct and significant relationship between cost and the adoption of technology (Schulte et al., 2022; Kumar & Kaushik, 2022; Elahi, et al., 2022; Zeng et al., 2022). With a higher benefit-cost ratio, people are more likely to use renewable energy sources. This is also a regular occurrence while using solar power. For renewable energy installations, the bare minimum cost may be greater. Thus, the hypothesis will be formulated as follows:

H5: A positive significant relationship between cost concern and purchase intention toward solar system.

2.5. Conceptual framework:

After reviewing the previous literature and developing the current study hypotheses, the researcher developed the current research model as follow:



3. Research Methodology

Using Google Docs to distribute surveys and SPSS to analyse the data, this study takes a quantitative approach. A Likert scale was used to measure how strongly linked individuals agreed or disagreed with items on a five-point scale in the questionnaire.

3.1 Research Population, Sampling Technique and Sample Size

All members in Lebanese citizens are considered part of the target population.
Due to the researcher has access to the population, they are using convenience sampling to choose a sample. Employees from a variety of backgrounds filled out the survey questions for this study. Only 300 of the 350 respondents who were asked to participate in the survey actually showed up in Lebanese contexts.

3.6 Measurement of Variables

The main aim of this research is to examine the factors which motivate customers to buy solar system. The measurement of the dependent and independent variables are represented in the following table:

Table1: Variable conceptualization

Variable	Number of Questions	Question	Reference
Environmental concern	4 items according to likert scale	The household's concern about the environmental protection aspects of smart grid rooftop solar energy systems.	Xu et al., (2021).
		Smart grid rooftop solar energy can help to protect the environment.	
		If I install a smart grid rooftop solar electricity system, I will contribute to the preservation of nature and humanity.	
		The owner of a smart grid rooftop system can feel better because they do not harm the environment.	
Environmental Awareness	4 items according to likert scale	I think an environmental problem has a direct impact on our day to day life.	Kesari et al., (2021)
		Most of the conventional energy resources are harmful to the atmosphere when they burn.	
		The climate will change massively if harmful gases continue to emit in the near future.	
		We have to solve some environmental problems collectively.	
Government Initiative	3 items according to likert scale	Government initiative motivates me to adopt a residential PV system.	Kesari et al., (2021)
		I will purchase a residential PV system if the government provides subsidies.	
		Government policies for the use of solar lighting system are beneficial.	
Technology Anxiety	3 items according to likert scale	Working with solar system will make me nervous.	Liu et al., (2020)
		New technology like solar system will make me feel uncomfortable.	
		I hesitate to use new technology like solar system, for fear of making major mistakes.	
Cost Concern	3 items according to likert scale	Solar system basic installation fee.	Liu et al., (2020)
		Additional solar system service fee.	
		Solar system maintenance fee.	
	4 items according to likert scale	Intention to use solar system.	Fathima et al., (2022).
		I intend to adopt solar system.	
		I intend to use solar system regularly in future.	

		I would highly recommend solar system for other people to use.	

4. Descriptive Statistics

The data was organized and the correlations between variables were described using the SPSS version 20.

4.1. Demographic Variables

Table 2: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	142	47.3	47.3	47.3
	Male	158	52.7	52.7	100.0
	Total	300	100.0	100.0	

Source: SPSS version 20

Referring to the above table, it can be noted that 142 respondents are females and 158 respondents are males.

Table 3: Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30	160	53.3	53.3	53.3
	30-40	74	24.7	24.7	78.0
	40-50	58	19.3	19.3	97.3
	50+	8	2.7	2.7	100.0
	Total	300	100.0	100.0	

Source: SPSS version 20

Referring to the above table, it can be noted that 160 respondents are in the age range of 20-30 years old, 74 respondents are in the age range of 30-40 years old, 58 respondents are in the age range of 40-50 years old and 8 respondents are 50+.

Table 4: Marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Divorced	8	2.7	2.7	2.7
	In a relationship	8	2.7	2.7	5.3
	Married	116	38.7	38.7	44.0
	Single	168	56.0	56.0	100.0
	Total	300	100.0	100.0	

Source: SPSS version 20

Referring to the above table, it can be noted that 8 respondents are divorced, 8 respondents are in relationship, 116 respondents are married, and 168 respondents are single.

Table 5: Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 000 000 - 4 000 000	34	11.3	11.3	11.3
	15 000 000 - 30 000 000	70	257	25	16.0
	30 000 000+ LBP	40	13.3	13.3	48.0
	4 000 000 - 8 000 000 LBP	74	24.7	24.7	72.7
	8 000 000 - 15 000 000	82	27.4	27.4	89.3
	Total	300	100.0	100.0	

Source: SPSS version 20

Referring to the above table, it can be noted that 34 respondents have a salary between 1,000,000 and 4,000,000 and 14 respondents have a salary between 15,000,000 and 30,000,000, 40 respondents have above 30,000,000 LBP salary, 74 respondents have between 4,000,000 and 8,000,000 salary and 85 respondents have between 8,000,000 and 15,000,000 LBP.

4.2. Reliability

Table 6: Cronbach Alpha

	Extraction
Environmental Concern	.790
Environmental Awareness	.749
Government Initiative	.784
Technology Anxiety	.757
Cost Concern	.747
Intention to Purchase	.754

Source: SPSS version 20

Referring to the validity and reliability table results, the analysis aims to validate the data collected based on an indicator called Cronbach Alpha. Referring to the rule of thumb, it can be noted that if Cronbach Alpha < 0.5, data is not validated, if Cronbach Alpha between 0.5 and 0.7 the data is validated but contains bias and if Cronbach Alpha > 0.7 then the data are validated.

The obtained results showed that "Environmental Concern" scored a Cronbach Alpha of 0.790 which is above 0.7, "Environmental Awareness" scored Cronbach Alpha "0.749", "Government Initiatives" scored Cronbach Alpha "0.784", "Technology anxiety" scored also a Cronbach Alpha greater than 0.7 "0.757", "Cost Concern" scored 0.747 and at last "Intention to Purchase" scored Cronbach Alpha "0.754".

Since all values scored a Cronbach greater than 0.7, this implies that all the variables are statistically validated.

4.3. Validity Analysis

To be called reliable, the data generated by an instrument must accurately and meaningfully reflect a theoretical concept. To put it another way, the data must consider all important factors. Once the data has been verified, conclusions must be accurate and appropriate (Mohajan, 2017). Being able to use a wide range of facts to support a research makes it more credible (Yin, 2003).

Table 7: Validity Test

Factor	KMO	P-Value
Environmental Concern	.801	0.011
Environmental Awareness	.703	0.012
Government Initiative	.693	0.015
Technology Anxiety	.772	0.035
Cost Concerns	.785	0.026
Intention to Purchase Solar System	.789	0.025

Source: Author Work

KMO and Barlett's validity tests were employed as part of this study to determine whether or not our data sets were appropriate. A correlation matrix or a correspondence process should be used when conducting surveys based on this statistic. To be considered accurate, a characteristic's accuracy must be more than 0.6 and its KMO variance must be between 0.000 and 1.0. It is clear from this table that all variables in the study had values of more than or equal to 0.06. As a consequence, future studies may make use of all of the parameters examined.

4.4. Pearson Correlations

Table 8: Pearson Correlations

Correlations							
		Environmental Concern	Environmental Awareness	Government Initiative	Technology Anxiety	Cost Concerns	Intention to Purchase
Environmental Concern	Pearson Correlation	1	.645**	.660**	.595**	.628**	.083
	Sig. (2-tailed)		.000	.000	.000	.000	.151
	N	300	300	300	300	300	300
Environmental Awareness	Pearson Correlation	.645**	1	.698**	.421**	.731**	.086
	Sig. (2-tailed)	.000		.000	.000	.000	.139
	N	300	300	300	300	300	300
Government Initiative	Pearson Correlation	.660**	.698**	1	.518**	.633**	.033
	Sig. (2-tailed)	.000	.000		.000	.000	.568
	N	300	300	300	300	300	300
Technology Anxiety	Pearson Correlation	.595**	.421**	.518**	1	.587**	.176**
	Sig. (2-tailed)	.000	.000	.000		.000	.002
	N	300	300	300	300	300	300

Cost Concerns	Pearson Correlation	.628**	.731**	.633**	.587**	1	.351**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	300	300	300	300	300	300
Intention to Purchase	Pearson Correlation	.083	.086	.033	.176**	.351**	1
	Sig. (2-tailed)	.151	.139	.568	.002	.000	
	N	300	300	300	300	300	300

Source: SPSS version 20

The following connections have been addressed in the above Table:

It can be noticed that cost concerns and intention to purchase solar system are positively correlated with Pearson Coefficient of 0.351. Technology anxiety and intention to purchase showed a Pearson Coefficient of 0.176. However, government initiative and intention to purchase showed a positive weak correlation with Pearson Coefficient of 0.033.

It can also be noted that the correlation between environmental concerns and environmental awareness showed a moderate to strong positive correlation with Pearson Coefficient of 0.645. In addition, government initiative and environmental concerns also showed a Pearson coefficient of 0.698 indicating a moderate to strong positive correlation.

Environmental awareness and cost concerns on the other hand, showed a strong positive correlation since their Pearson coefficient indicated 0.731.

According to the Pearson Coefficient, there is a 0.595 connection between technology anxiety and environmental concern indicating a moderate positive association.

4.5. Regression Analysis

Table 9: Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.514[a]	.264	.251	1.012
a. Predictors: (Constant), Environmental Concern, Environmental Awareness, Government Initiative, Technology Anxiety, Cost Concerns, Intention to Purchase Solar System.				

Referring to the above model, it can be noted that the addressed independent variables which are: Environmental Concern, Environmental Awareness, Government Initiative, Technology Anxiety and Cost Concerns scored R (0.514) which means that the strengths and the association between these variables and the intention to purchase is 51.4%. In other words, these independent variables

mentioned tends to impact the intention to purchase solar systems by 51.4% and that 66.5% of the variables are not addressed in this model. However, the R^2 scored in this model is 26.4% which means that 26.4% of the variation in the intention to purchase solar systems are explained by the variation in the independent variables mentioned.

The above regression studies the relationship between the independent variables, which are Environmental Concern, Environmental Awareness, Government Initiative, Technology Anxiety and Cost Concerns, and the dependent variable, which is Intention to Purchase Solar Systems. The significance level for all independent variables mentioned shows a level lower than 0.05, which means that there is significant relationship these independent variables and intention turnover.

The alternative hypothesis will be accepted which states that there is relation between the independents variables which are environmental concern, environmental awareness, government initiative, technology anxiety, and cost concerns, and the dependent variable which is the intention to purchase solar system.

4.12 Hypothesis Validation

Table 10: Hypothesis Validation Summary Table

Variable	Hypothesis	Validation
Environmental concern	H1: There is relationship between environmental concern and intention to purchase solar system.	Accepted
Environmental awareness	H2: There is relationship between environmental awareness and intention to purchase solar system.	Accepted
Government initiative	H3: There is relationship between government initiative and intention to purchase solar system.	Accepted
Technology anxiety	H4: There is no relationship between technology anxiety and intention to purchase solar system.	Rejected
Cost concerns	H5: There is relationship between cost concern and intention to purchase solar system.	Accepted

Source: Author Work

5. Discussion of Findings

Based on the study's results, the relationship between environmental concern and purchase intentions toward solar system is positively related. Thus, H1 is supported. The results are in line with the literature review (Kollmuss & Agyeman 2002; Maartensson & Loi, 2022; Klöckner & Matthies 2004; Shah & Bhatt, 2022; Saraireh, 2023; Klabi & Binzafrah, 2022; Zameer & Yasmeen, 2022; Harun et al., 2022; Ho & Huynh, 2022; Daniela-Abigail, 2020; Tan et al., 2022; Li et al., 2022; Lee, 2022; Patwary, 2023. However, this finding contradict the study of Asif, (2022). This means that people who are more concerned about the environment tend to have stronger environmental values, and these values can influence their purchasing decisions. When people's values align with environmentally-friendly products or practices, they are more likely to purchase them. In addition, these results mean that people who are more environmentally concerned often feel a sense of responsibility to act in ways that are consistent with their values. This can translate into a greater willingness to purchase environmentally-friendly products or support businesses that prioritize sustainability. As people become more aware of the impact of their actions on the environment, they may be more likely to seek out products and services that have a smaller environmental footprint. This can lead to a higher intention to purchase environmentally-friendly options.

Based on the study's results, the relationship between environmental awareness and purchase intentions toward solar system is positively related. Thus, H2 is supported. These results are in line with the literature review (Pothitou et al., 2016; Zografakis et al., 2010; Asif, 2022; Laroche et al., 2001; Zameer & Yasmeen, 2022; Wang et al., 2022; Abeysekera, et al., 2022; Su et al., 2022; Krisdayanti & Widodo, 2022; Le et al., 2022; Eberle et al., 2022). This means that Environmental awareness is often accompanied by knowledge about the benefits of renewable energy sources such as solar power. People who are more informed about the positive impact of solar systems on the environment are more likely to consider purchasing them, as they recognize the long-term benefits of investing in such systems. In addition to the environmental benefits, solar systems can also provide economic benefits to homeowners and businesses, such as reduced energy bills and potential tax incentives. Individuals with greater environmental awareness may be more likely to consider these benefits and make a purchase based on the cost savings and return on investment.

Based on the study's results, the relationship between government initiative and purchase intentions toward solar system is positively related. Thus, H3 is supported. The results are in line with the literature review (Ushakov et al., 2019; Pathak & Sharma, 2022; Atulkar, 2022; Khan & Nazir, 2022; Hyysalo et al., 2022; Qader et al., 2023). This means that the government plays a crucial part in advancing solar energy. These policies are more widely accepted and encourage customers to utilize solar systems since they rely significantly on government incentives. When the government takes the lead on solar energy, more people are likely to embrace the system. Correlation between government action and interest in purchasing a solar energy system.

Based on the study's results, the relationship between technology anxiety and purchase intentions toward solar system is negatively related. Thus, H4 is not supported. The results are in line with the literature review (Daniela-Abigail et al., 2022; Schettino et al., 2022; Daramola, 2022; Rosen et al., 2022; Ushakov et al., (2019). This means that individuals with technology anxiety may be intimidated by this complexity and unfamiliarity of the solar systems. This can lead to be less likely to consider purchasing a solar system if they feel overwhelmed by the technical aspects. In addition, individuals may be more hesitant to take risks or try new things such as solar system.
Based on the study's results, the relationship between cost concern and purchase intentions toward solar system is positively related. Thus, H5 is supported. The results are in line with the literature review (Schulte et al., 2022; Kumar & Kaushik, 2022; Elahi, et al., 2022; Zeng et al., 2022). This means that when the benefit-to-cost ratio of solar system is high, people are more likely to make the change. Similarly, this is a typical case for solar power.

5.1. **Theoretical Implications**

The results of this study highlight the importance of environmental values and attitudes in decision-making related to renewable energy technologies. This suggests that interventions aimed at increasing environmental awareness and concern may be effective in promoting the adoption of solar systems. In addition, the findings highlight the importance of perceived complexity and risk in technology adoption. This suggests that interventions aimed at reducing complexity and increasing trust in solar systems may be effective in promoting adoption among individuals with technology anxiety. Moreover, this study helps the academics to better understand the consumer behavior toward purchasing the solar system. The results of the study also help the researchers to determine the factors that affect the purchase intention of solar system.

5.3 Managerial Implications

This research has important implications for businesses, stakeholders, and government authorities as it investigates what influences consumers' decisions to invest in solar energy. The research sheds the light on the factors that leads to the purchase of solar system that is both sustainable and long-term. These results may be used by managers and policymakers to propose ways to improve solar system via solar system components.

The marketers should increase awareness and education about the environmental and financial benefits of solar systems. They should target both individuals and communities to create a culture of solar adoption and promote its benefits. In addition, the decision makers should create solar systems to be more user-friendly and less complex to increase adoption rates. This can be achieved by simplifying the installation process, providing clear instructions, and offering user-friendly interfaces for monitoring and managing the systems.

Marketers should provide clear information on the performance and maintenance requirements of the system, consumers can make informed decisions and have confidence in the product of

solar systems. Managers should provide the solar system with low cost that can help to make solar systems more affordable and reduce the financial burden for consumers.

5.4 Limitations and Future Research

The current investigation contains limitations. To begin, the sample size is small, which reduces the reliability of the overall findings. As a result, the future study has to employ a larger sample size more than 300 people to acquire reliable results. Second, the data was collected nationally and did not differentiate between rural and urban areas. Differences in awareness, wealth, and education may exist between urban and rural communities. Future Research in the countryside is one solution for overcoming this limitation in future investigations. The inclusion of this crucial piece of information in future studies might significantly enrich the existing body of knowledge from a Lebanese perspective.

5.6 Conclusion

This research aims to analyse the factors that affect intentions to purchase solar system in Lebanon. based on numerous psychological models, theories, and comprehensive frameworks. The following factors are respectively, Environmental Concern, Environmental Awareness, Government Initiative, Technological Anxiety, and Cost Concerns. The results showed that all hypotheses are positively related expect the relationship between technology anxiety and purchase intention of solar system. In addition, this study revalidated the following theories, theory of planned behavior (TPB) and diffusion of innovation theory (DIT).

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